

## Economic profitability of cane based furniture enterprises of Chittagong City Corporation Area, Bangladesh

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**Abstract:** An exploratory survey was conducted to assess economic profitability of cane based furniture enterprises in Chittagong City Corporation area of Bangladesh. A multistage random sampling was adopted to carry out the study. Based on the total investment the enterprises were divided into large, medium and small. Most of the entrepreneurs (55%) are in the age class 40–50 years and only (18.33%) are >50 years. In small and medium category lowest entrepreneurs (8.33% each) are found graduate and 18.33% in large farm. Most of the enterprises are in the small category (45%) and 66.67% labors are skilled whereas only 33.33% are unskilled. Seven articles of sixteen different sizes were identified made from cane, which are Sofa (45 cm × 45 cm, 50 cm × 50 cm and 55 cm × 55 cm), Dinning (4ch. 1tab, and 6ch. 1tab.), Bed (1 m × 2m, 1.3 m × 2.3 m and 1.5 m × 2.3 m), Chair (45 cm × 45 cm and 50 cm × 50 cm), Rocking chair (large size, medium and small size), Dolna (Hanging and Running) and Partition. In all the three category enterprises chair (45 cm × 45 cm) was produced in highest number and the lowest production was Bed (1.5 m × 2.3 m). The total net benefit (2089 US\$) and benefit cost ratio (1:16) was the highest for large cane enterprises. So among three categories of the cane enterprises the large enterprises are more profitable than others.

**Keywords:** Bangladesh; Cane enterprises; Net benefit; Benefit-cost ratio,

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### Introduction

Rattans or cane is one of the most important natural resources of Bangladesh forests and homesteads (Ara 1997a). Eleven species of cane are reported under 2 genera, *Calamus* and *Dae-monorops* and all species are found growing naturally in the forest (FAO 1993). Generally in the forests of Bangladesh rattans occur in the north-eastern hill forests of Chittagong, Cox's Bazar, Chittagong Hill Tracts and Sylhet (Ara 1997b). In Bangladesh rattan collection from government forest is done by local people on payment of royalties to the Forest Department (Patric *et al.*, 1994). In furniture making *Calamus guruba* (jali bet or sundi bet) and *Calamus tenuis* (bet, jayo) are commonly used in Bangladesh (Banik 1998).

The demand for well processed, good quality canes are going up in the world market and it is presumed that the demand is three times the supply. Indonesia exports 90% of the world's requirement of rattans. In the total world export of primary forest products, rattan occupies second position next to timber (Nuruz-zaman 2001). The climatic condition of Bangladesh is very suitable for cane growing (BBS 2002). But this natural resource is getting depleted at an alarming rate (Banik, 1998). Rattan is one of the materials of cottage industries and this resource adds considerable amount of revenue to rural households (Mohiuddin *et al.* 1986). Cane also provides inexpensive furniture, utensils and agricultural implement and cane furniture is very popular because of its cheapness and the natural looks (Nuruzzaman 2001). There are several cane based furniture enterprises in Dhaka,

Chittagong, Sylhet, Comilla, Khulna and some other towns of Bangladesh (BBS 2002). Among the Non wood forest product the use of bamboo and cane are well known in the rural areas also (Nath *et al.* 2000). Various authors (Nath *et al.* 2000; Akther *et al.* 1997; Bakht 1984; Hossain 1984) studied various aspect of bamboo based industry in Bangladesh. Alamgir *et al.* (2005) conducted research on the employment generation and economics of cane based furniture enterprises of Chittagong, Bangladesh. So the present study was conducted to explore the economic profitability of cane based furniture enterprises of Chittagong City Corporation Area. The study will help the people to invest in the cane enterprises and to the Government and Non government organization also to realize the necessity of providing expertise to the cane enterprises of the country.

### Materials and Methods

The study was conducted in Chittagong City Corporation area of Bangladesh. It lies in the extreme south east of the country between 22°35' and 22°59' N latitude and between 91°27' and 91°22' E longitude. The area of Chittagong Metropolitan City is 137.30 km<sup>2</sup>. The targeted area of Chittagong City Corporation according to Chittagong Development Authority master plan is 986.304 km<sup>2</sup> (Anon 1992). Chittagong City Corporation had a population of 2.096 million in 2001 (BBS, 2002). The average annual relative humidity is 80.53% with a monthly average range from 70.50% in February to 85.55% in July. The mean monthly temperature ranges from 21.20 °C in November to 28.44 °C in April with a mean annual temperature of 26.44 °C. Average annual rainfall was recorded as 2790 mm (BBS, 2002).

The study was conducted following a multi stage random sampling. A preliminary survey was carried out to classify the enterprises on their total investment and to determine the category of skilled and unskilled labour in the enterprises. Three categories of enterprises were made based on the preliminary

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survey, which are large (>US\$ 3340), medium (US\$ 1670-3340) and small (<US\$ 1670). The Production number, production cost and selling price of the articles were determined according to the owner view of the enterprise. In Chittagong City Corporation sixty cane furniture enterprises were selected randomly and data was collected through a semi-structured questionnaire. As semi structured questionnaire was used so the respondents were free to express his/her own view at each step of the interview. The production cost of each article was calculated as, Production cost of each article = Raw material cost + Transportation cost + Processing cost (labour wage + supplementary materials). Selling price is the price at which the articles are sold. Average profit is the difference between selling price and production cost of each article. The total article no. was estimated according to the owner's view. The total cost of each category was calculated by multiplying the production cost and article no. and then added to get the total. The total income and profit were also calculated in the same manner.

## Result and Discussion

### Demographic features of cane furniture enterprises

#### *Age and educational status of entrepreneurs*

The age categories of the entrepreneur are ranges from 30 to above 50. Most of the entrepreneurs (55%) are in the age class 40–50 years and only (18.33%) are >50 years. In the large farm the entrepreneurs are completely absent in 30-40 years age category. This might be due to initially the entrepreneurs started a small farm and gradually increased his investment and converted to a large farm. In small and medium category lowest entrepreneurs (8.33% each) are found graduate which is about 18.33% in large farm. The highest percentage of entrepreneur is found in

secondary level (46.67%). Primary educated entrepreneurs are completely absent in the medium and large farm (Table 1). It is revealed that education level is an important criterion for medium and large farm. In some small entrepreneurs though they has the capacity to invest more but they don't do it, because they always suffer from lacking of education (entrepreneurs view). The study conducted by Chowdhury and Nahar (1993) found that about 73% of the informants engaged in the bamboo and cane works in Comilla region of Bangladesh were illiterate. Alamgir *et al.* (2005) found that most of the labours in the cane enterprises are illiterate. According to FAO (1993) the educational level of persons employed in informal wood working shops is usually low. Though these findings were true for workers but entrepreneurs of cane enterprises are not illiterate even most of the large cane entrepreneurs are graduate.

#### *Cane farm category and labor status*

Most of the enterprises are in the small category (45%). The investment of both fixed and running was found highest in large category which are 6528 US\$ and 17500 US\$ respectively and the lowest of those was found small category (917 and 3200 US\$ respectively). In the study it was found that about 66.67% labors are skilled whereas only 33.33% are unskilled. Among the skilled labor the highest number (33.33%) are worked in large farm followed by medium (22.22%) and small farm (11.11%). Among the unskilled labor 13 numbers (16.05%) are worked in the large farm followed by medium and small farm seven numbers each. Out of 81 numbers labor 40 numbers (49.38%) worked in the large farm followed by medium farm 25 numbers (30.86%) and small farm 16 numbers (19.75%) (Table 2). Usually in the large farm both skilled and unskilled labor get more wages than medium and small farm.

**Table 1. Age class and educational status of cane furniture entrepreneurs of Chittagong City Corporation area.**

Category	Age class			Total	Educational status		
	30-40	40-50	>50		Primary	Secondary	Graduate
Small	11(18.33)	11(18.33)	5(8.33)	27(45)	11(18.33)	11(18.33)	5(8.33)
Medium	5 (8.33)	11(18.33)	-	16(26.67)	-	11(18.33)	5(8.33)
Large	-	11(18.33)	6(10)	17(28.33)	-	6(10)	11(18.33)
Total	16(26.67)	33(55)	11(18.33)	60(100)	11(18.33)	28(46.67)	21(35)

**Table 2. Category and labor of cane furniture enterprises of Chittagong City Corporation area.**

Enterprise Category	Enterprise No	Investment			Labor		
		Fixed	Running	Total	Skilled	Unskilled	Total
Small	27 (45)	917	3200	4117	9 (11.11)	7 (8.64)	16 (19.75)
Medium	16 (26.67)	2600	10100	12700	18 (22.22)	7 (8.64)	25 (30.86)
Large	17 (28.33)	6528	17500	24028	27 (33.33)	13 (16.05)	40 (49.38)
Total	60 (100)	-----	-----	-----	54 (66.67)	27 (33.33)	81 (100)

#### *Problems of the enterprises*

The cane enterprises of Chittagong City Corporation area are suffered from various problems. The main problem is scarcity of good quality cane and unavailability of cane during some off-season. During the off-season they bought cane from smuggler with severely high price (almost two-times more). This season works as a survival of the fittest for the small category enterprises because they have less investment. The quality of the local cane (low price) is not good as the quality of the foreign cane (high price). The cane enterprises also suffer from the want of skilled labor. This is because there is no training center for

this labor. The labor learnt everything in the enterprises. When the labors are unskilled they get reasonable wage but when they are skilled, they want very high wage. Another reason of high wage of skilled labor is less in number with regard to the enterprises.

### Economic profitability

#### *Cost and profit from each article*

Table 3 shows article produced, production cost, selling price and average profit of small, medium and large category enter-

prises. Sixteen articles were identified which are made from cane. In all the three category enterprises chair (45 cm × 45 cm) was produced in highest number which were 25, 89 and 164 in small, medium and large category respectively and the lowest production was Bed (1.5 m × 2.3 m) in all category (0, 1 and 4 respectively). The production cost and selling price per article were highest for dinning (6ch. 1tab) in all category enterprise which were 115.89, 123.33; 125, 137 and 122.92, 137.5 US\$ respectively for small, medium and large category enterprise. The lowest production cost and selling price per article was 6.25 and 7.5

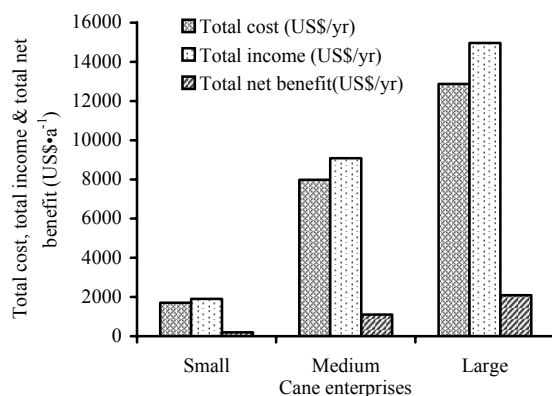
US\$ respectively for Dolna (Hanging) in small category enterprise. The highest average profit per article was 17.92 US\$ for sofa (45 cm × 45 cm) in large category enterprise and the lowest average profit per article was 0.83 US\$ for chair (50 cm × 50 cm) in medium category enterprise (Table 3). In all cases produced number, production cost and selling price per article were low in large category to medium category enterprise but the average profit per article was high in large category as their production cost are less.

**Table 3. Articles produced from cane annually with their production cost, selling price and average profit in Chittagong city corporation area.**

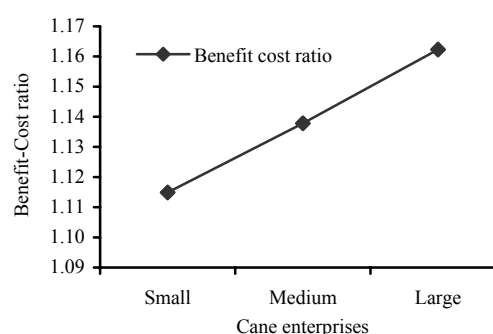
Article	Farm category											
	Small				Medium				Large			
	Pro- duced article/a	Production cost US\$/art	Selling Price US\$/art	Average Profit US\$/art	Produced article /a	Production Cost US\$/art	Selling Price US\$/art	Average Profit US\$/art	Produced article/a	Production cost US\$/art	Selling Price US\$/art	Average Profit US\$/art
Sofa (45 cm×45 cm)	2	85.42	95	9.58	14	87.5	103.75	16.25	22	85	102.92	17.92
Sofa (50 cm×50 cm)	3	95.83	102.92	7.08	26	103.75	117.08	13.33	35	100.83	117.5	16.67
Sofa (55cm×55 cm)	2	106.25	112.5	6.25	8	116.67	129.58	12.92	13	117.5	129.17	11.67
Dinning (4 chairs, 1 table)	1	80	87.92	7.92	4	91.67	104.17	12.5	9	87.5	99.17	11.67
Dinning (6 chairs, 1 table)	1	115.83	123.33	7.5	2	125	137.08	12.08	5	122.92	137.5	14.58
Bed (1 m×2 m)	-	-	-	-	2	42.08	50.83	8.75	10	39.17	47.92	8.75
Bed (1.3 m×2.3 m)	-	-	-	-	1	52.5	58.75	6.25	6	47.5	56.67	9.17
Bed (1.5 m×2.3 m)	-	-	-	-	1	60.42	70	9.58	4	59.17	69.17	10
Chair (45cm×45cm)	25	9.58	10.83	1.25	89	10.42	11.67	1.25	164	9.58	11.25	1.67
Chair(50 cm×50 cm)	16	11.17	12.08	0.92	52	12.5	13.33	0.83	55	12.08	13.33	1.25
Rocking chair (large)	8	14.83	18.33	3.5	4	15.83	19.17	3.33	13	15	19.58	4.58
Rocking chair (medium)	5	14.17	16.67	2.5	3	14.58	16.67	2.08	6	13.75	16.25	2.5
Rocking chair (small)	3	12.5	14.58	2.08	1	12.08	14.58	2.5	5	11.67	14.17	2.5
Dolna (running)	10	7.08	8.33	1.25	26	12.5	15.83	1.67	47	12.08	13.75	1.67
Dolna (hanging)	16	6.25	7.5	1.25	18	11.67	13.75	2.08	29	10.83	12.5	1.67
Partition	2	11.67	12.92	1.25	7	11.25	13.33	2.08	17	10.42	12.92	2.5
<b>Total</b>		570.58	622.92	52.33		780.41	889.58	107.5		755	873.75	118.75

#### Annual cost, income, net profit and benefit cost ratio of each category cane enterprises

The total annual cost, total income and total net benefit was the highest (US\$ 12872, US\$ 14961 and US\$ 2089) in large cane enterprises followed by medium and small cane enterprises (Fig. 1). Benefit cost ratio was the highest (1.16) for large cane enterprises followed by medium (1.14) and small (1.11) cane enterprises (Fig. 2).



**Fig. 1 Total cost, total income & total net benefit (US\$/yr) of cane furniture enterprises of Chittagong City Corporation area.**



**Fig. 2 Benefit - Cost ratio of cane furniture enterprises of Chittagong City Corporation area.**

Considering net benefit and benefit cost ratio, large and medium cane enterprises are more profitable than small cane enterprises at Chittagong City Corporation area. In Bangladesh the per capita income is only US\$ 444 (BBS 2002) but the net profit for medium and large cane entrepreneurs are much higher. The findings of (Burkil 1935; Corner 1966; Dransfield 1992; Sunderland 1998) that canes are used extensively across their range by local communities and play an important role in subsistence strategies for many rural populations. Alam (1990) reported that most of the rattan supplied to the industries is smuggled from Assam and Myanmar. This cane require higher price than the

local cane as a result the enterprises incur more production cost for a particular article. Annual average harvest from the forest during 1981–1987 was 1074585.5 m<sup>3</sup> and lesser than the demand. Ara (1997a) reports that cane based industries are being closed due to lack of raw materials, though the climatic condition of Bangladesh is suitable for Bangladesh (Nuruzzaman 2001). A cane furniture enterprise is a most profitable business for Bangladesh and can be used to sustain the national economy through extension of these enterprises as rattan products chiefly serve the rural economy, the bulk of national population (Nuruzzaman 2001). From the study it can be concluded that cane based furniture enterprises should be medium or large category to get more economic benefit with less investment. The government and non government organization should take steps to make cane available for enterprises from forest of Bangladesh. So that the rural people will get employment in the planting, managing, harvesting and marketing of cane and at the same time skilled and unskilled labor will get employment in the cane based furniture enterprises.

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